CLAIMS

The invention is claimed as follows:

1. An electrosurgical device including an electrode, a handle connected to the electrode and an electrical source in communication with the handle to transfer electrical energy to the electrode for contacting tissue in a body during an electrosurgical procedure, said electrode comprising:

a conductive substrate; and

at least one substantially uniform coating applied to said substrate, wherein the coating includes a base material and a plurality of anti-microbial particles interspersed in said base material.

2. The electrosurgical device of Claim 1, wherein the conductive substrate includes a metal.

3. The electrosurgical device of Claim 2, wherein the metal includes stainless steel.

4. The electrosurgical device of Claim 1, wherein at least a portion of the conductive substrate includes an electrically insulative material, which is applied to the surface of the conductive substrate.

5. The electrosurgical device of Claim 4, wherein only a portion of the conductive substrate underneath the insulative material includes the substantially uniform coating.

6. The electrosurgical device of Claim 1, wherein the base material includes a non-stick material.

7. The electrosurgical device of Claim 6, wherein the non-stick material includes at least one of the non-stick materials selected from the

group consisting of: silicone, polytetrafluoroethylene, a fluoropolymer, ceramics and a combination of fluorosilicones.

8. The electrosurgical device of Claim 1, wherein the anti-microbial particles include at least one of the group consisting of: silver particles and ceramic particles.

9. An electrosurgical device including an electrode, a handle connected to the electrode and an electrical source in communication with the handle to transfer electrical energy to the electrode for contacting tissue in a body during an electrosurgical procedure, said electrode comprising:

a conductive substrate;

a wet bonding material applied to the surface of the substrate;

a single layer of substantially uniform anti-microbial particles applied to the wet bonding material; and

a top coating applied to the layer of anti-microbial particles.

10. The electrosurgical device of Claim 9, wherein the conductive substrate includes a metal.

11. The electrosurgical device of Claim 10, wherein the metal includes stainless steel.

12. The electrosurgical device of Claim 9, wherein the wet bonding material includes a primer.

13. The electrosurgical device of Claim 9, wherein the anti-microbial particles include at least one of the group consisting of: silver particles and ceramic particles.

14. The electrosurgical device of Claim 9, wherein the top coating includes a non-stick material.

15. The electrosurgical device of Claim 14, wherein the non-stick material includes at least one of the non-stick materials selected from the group consisting of: silicone, polytetrafluoroethylene, a fluoropolymer, ceramics and a combination of fluorosilicones.

16. The electrosurgical device of Claim 9, wherein the top coating includes at least one of the following powdered coatings: polytetrafluoroethylene, perfluoroalkoxy, MFA and fluoronated ethylene propylene.

17. The electrosurgical device of Claim 1, wherein at least a portion of the conductive substrate includes an electrically insulative material, which is applied to the surface of the conductive substrate.

18. The electrosurgical device of Claim 17, wherein only a portion of the conductive substrate underneath the insulative material includes the top coating.

19. An electrosurgical instrument comprising:

a conductive substrate including a proximal end and a distal end;

a handle connected to the proximal end of said substrate;

at least one electrical transfer member connected to the handle, which transfers electrical energy from an electrical source through the handle to the conductive substrate; and

a wet bonding material applied to the surface of the substrate;

a single layer of substantially uniform anti-microbial particles applied to the wet bonding material; and

a top coating applied to the layer of anti-microbial particles.

20. The electrosurgical device of Claim 19, wherein the conductive substrate includes a metal.

21. The electrosurgical device of Claim 20, wherein the metal includes stainless steel.

22. The electrosurgical device of Claim 19, wherein the top coating includes a non-stick material.

23. The electrosurgical device of Claim 22, wherein the non-stick material includes at least one of the non-stick materials selected from the group consisting of: silicone, polytetrafluoroethylene, a fluoropolymer, ceramics and a combination of fluorosilicones.

24. The electrosurgical device of Claim 19, wherein the top coating includes at least one of the following powdered coatings: polytetrafluoroethylene, perfluoroalkoxy, MFA and fluoronated ethylene propylene.

25. The electrosurgical device of Claim 19, wherein the anti-microbial particles include at least one of the group consisting of: silver particles and ceramic particles.

26. The electrosurgical device of Claim 19, wherein at least a portion of the conductive substrate includes an electrically insulative material, which is applied to the surface of the conductive substrate.

27. The electrosurgical device of Claim 26, wherein only a portion of the conductive substrate underneath the insulative material includes the top coating.

28. An electrosurgical instrument comprising:

a conductive substrate including a proximal end and a distal end;

a handle connected to the proximal end of said substrate;

at least one electrical transfer member connected to the handle, which transfers electrical energy from an electrical source through the handle to the conductive substrate; and

at least one substantially uniform coating applied to said substrate, wherein the coating includes a base material and a plurality of anti-microbial particles interspersed in said base material.

29. The electrosurgical device of Claim 28, wherein the conductive substrate includes a metal.

30. The electrosurgical device of Claim 29, wherein the metal includes stainless steel.

31. The electrosurgical device of Claim 28, wherein the wet bonding material includes a primer.

32. The electrosurgical device of Claim 28, wherein the anti-microbial particles include at least one of the group consisting of: silver particles and ceramic particles.

33. The electrosurgical device of Claim 28, which includes at least one top coating applied to the anti-microbial particles.

34. The electrosurgical device of Claim 33, wherein the top coating includes a non-stick material.

35. The electrosurgical device of Claim 34, wherein the non-stick material includes at least one of the non-stick materials selected from the group consisting of: silicone, polytetrafluoroethylene, a fluoropolymer, ceramics, polytetrafluoroethylene, perfluoroalkoxy, MFA, fluoronated ethylene propylene and a combination of fluorosilicones.

36. The electrosurgical device of Claim 33, wherein the top coating includes at least one of the following powdered coatings: polytetrafluoroethylene, perfluoroalkoxy, MFA and fluoronated ethylene propylene.

37. The electrosurgical device of Claim 28, wherein at least a portion of the conductive substrate includes an electrically insulative material, which is applied to the surface of the conductive substrate.

38. The electrosurgical device of Claim 37, wherein only a portion of the conductive substrate underneath the insulative material includes the top coating.

39. A method of coating an electrosurgical device including a conductive substrate, said method comprising the steps of:

(a) evenly applying a substantially uniform coating to a surface of the conductive substrate, said coating including a base material and a plurality of anti-microbial particles interspersed in the base material; and

(b) at least partially curing the substantially uniform coating.

40. The method of Claim 39, which includes the step of applying wet bonding material to the surface of the conductive substrate prior to step (a).

41. The method of Claim 40, wherein the wet bonding material includes a primer.

42. The method of Claim 39, which includes the step of applying at least one additional coating to the surface of the substrate after step (a).

43. The method of Claim 42, wherein the additional coating includes a non-stick material.

44. The method of Claim 43, wherein the non-stick material includes at least one of the non-stick materials selected from the group consisting of: silicone, polytetrafluoroethylene, a fluoropolymer, ceramics and a combination of fluorosilicones.

45. The method of Claim 42, wherein the additional coating includes the base material and the plurality of anti-microbial particles interspersed in the base material.

46. The method of Claim 39, wherein the anti-microbial particles include at least one of the group consisting of: silver particles and ceramic particles.

47. The method of Claim 39, wherein the base material includes a non-stick material.

48. The method of Claim 47, wherein the non-stick material includes at least one of the non-stick materials selected from the group consisting of: silicone, polytetrafluoroethylene, a fluoropolymer, ceramics and a combination of fluorosilicones.

49. The method of Claim 39, which includes the step of applying a top coating to the substantially uniform coating, wherein the top coating includes at least one of the following powdered coatings: polytetrafluoroethylene, perfluoroalkoxy, MFA and fluoronated ethylene propylene or a mixture of these powdered coatings.

50. The method of Claim 49, wherein the step of applying the top coating further includes the steps of:

(a) placing the conductive substrate on a grounded support; and

(b) electrostatically attracting the top coating to the substantially uniform coating.

51. The method of Claim 39, which includes the step of applying an electrically insulative material to at least a portion of the surface of the conductive substrate.

52. The method of Claim 51, wherein the step of applying the substantially uniform coating to the surface of the conductive substrate further includes applying the substantially uniform coating to only a portion of the surface of the conductive substrate underneath the insulative material.

53. A method of coating an electrosurgical device including a conductive substrate, said method comprising the steps of:

(a) applying a wet bonding material to at least a portion of a surface of the conductive substrate;

(b) evenly applying a single layer of substantially uniform anti-microbial particles to the wet bonding material;

(c) at least partially curing the wet bonding material and the substantially uniform anti-microbial particles; and

(d) applying a top coating to the bonding material and the anti-microbial particles.

54. The method of Claim 53, wherein the wet bonding material includes a primer.

55. The method of Claim 53, which includes the step of repeating steps (a) to (c) until a desired thickness is achieved.

56. The method of Claim 53, wherein the step of applying a top coating includes applying a non-stick material to the bonding material and the anti-microbial particles.

57. The method of Claim 56, wherein the non-stick material includes at least one of the non-stick materials selected from the group consisting of: silicone, polytetrafluoroethylene, a fluoropolymer, ceramics and a combination of fluorosilicones.

58. The method of Claim 53, wherein the anti-microbial particles include at least one of the group consisting of: silver particles and ceramic particles.

59. The method of Claim 53, wherein the step of applying the top coating includes partially applying the top coating to the bonding material and

the anti-microbial particles such that a portion of the anti-microbial particles are exposed at the surface of the conductive substrate.

60. The method of Claim 53, which includes the step of removing at least a portion of the top coating to expose a portion of the anti-microbial particles at the surface of the conductive substrate.

61. The method of Claim 60, wherein the step of removing the top coating includes sanding the top coating.

62. The method of Claim 60, wherein the step of removing the top coating includes buffing the top coating.

63. The method of Claim 53, wherein the step of applying a single layer of substantially uniform anti-microbial particles to the wet bonding material includes applying powdered anti-microbial particles.

64. The method of Claim 53, wherein the step of applying the top coating further includes applying at least one of the following powdered coatings: polytetrafluoroethylene, perfluoroalkoxy, MFA and fluoronated ethylene propylene or a mixture of these powdered coatings.

65. The method of Claim 64, wherein the step of applying the top coating further includes the steps of:

(a) placing the conductive substrate on a grounded support; and

(b) electrostatically attracting the top coating to the substantially uniform coating.

66. The method of Claim 53, which includes the step of applying an electrically insulative material to at least a portion of the surface of the conductive substrate.

67. The method of Claim 66, wherein the step of applying the top coating further includes applying the top coating to only a portion of the surface of the conductive substrate underneath the insulative material.

5